Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
For
Renewal of the

MAJOR FACILITY REVIEW PERMIT

for

Gilroy Energy Center, LLC at Wolfskill Energy Center
Facility #B4511

Facility Address:
2425 Cordelia Road
Fairfield, CA 94534

Mailing Address:
2425 Cordelia Road
Fairfield, CA 94534

September 2017

Application Engineer: Madhav Patil

Site Engineer: Madhav Patil

Application Number: 28496

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Title V Statement of Basis

A. Background:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a Phase II Acid Rain facility as defined by BAAQMD Regulation 2-6-217. It is an Acid Rain facility because it burns fossil fuel, serves a generator that is over 25 MW that is used to generate electricity for sale, and was built after November 15, 1990. It is not a "major facility" as defined by BAAQMD Regulation 2-6-212 because it does not have the "potential to emit," as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is B4511.

This facility received its initial Title V permit on July 18, 2003. This application is for a permit renewal and was received by the District on Feb 1, 2017. Although the current permit expires on August 1, 2017, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description:

Gilroy Energy Center, LLC at Wolfskill Energy Center, an affiliate of Calpine, is a 49.6-megawatt "peaking" power plant to provide power and distribution support to the electric grid during periods of high electricity demand. The facility consists of one simple-cycle, gas-fired combustion turbine and is located at 2425 Cordelia Road, Fairfield, California.

C. Permit Content:

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

I. Standard Conditions:

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for fossil-fuel fired electrical generating facilities or the release (40 CFR § 68) program apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Standard conditions will be updated to reflect current regulation adoption dates and new regulations that have been adopted since the original Title V permit was issued.

Changes to permit:
The dates of adoption have been updated to reflect current regulation adoption dates:

II. Equipment:

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Changes to permit:
There are no changes to the permitted equipment.

III. Generally Applicable Requirements:

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit.

This table will be updated to reflect current regulation adoption dates and new regulations that have been adopted since the original Title V permit was issued.

Changes to Permit:
Table III has been updated to reflect current regulation adoption dates.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation

of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.

- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations

The gas turbine is exempt from CAM requirements for NOx per 40 CFR Part 64.2(b)(iii) since the facility is subject to the acid rain permit program. The facility is subject to the Acid Rain program because it is a utility unit that serves a generator with a capacity greater than 25 MW in accordance with 40 CFR Part 72.6.

The potential to emit for the gas turbine is above 100 tons/year for CO (see calculation below). Per 40 CFR 64.2(a), an emission unit is subject to 40 CFR 64, Compliance Assurance Monitoring, if the unit is subject to a federally enforceable requirement for a pollutant, the pollutant is controlled by an abatement device, and the emissions of the pollutant before abatement are more than 100% of the major source thresholds.

CO PTE Calculation:

(25 ppmv)(20.95 - 0)/(20.95 - 15) = 88.03 ppmv, dry @ 0% O_2
(88.03/10^6)(lbmol/385.3 dscf)(28 lb CO/lbmol)(8740 dscf/MM Btu)
= 0.056 lb CO/MM Btu

The CO mass emission rate based upon the maximum firing rate of the gas turbine:
(0.056 lb/MM Btu)(500 MM Btu/hr)(8760 hr/yr)(1ton/2000 lb) = ***122.6 ton CO/yr***
Note; 25 ppmv concentration for uncontrolled CO emissions from GE LM6000 data sheet

The CO emissions from the gas turbine are subject to CAM requirements.

The CO CEM meets the requirement of 40 CFR 64.3(a)(1) to obtain data by directly measuring CO concentrations instead of an indicator of emissions. The monitoring meets 64.3(a)(2) which requires the owner/operator to establish an appropriate range to provide

a reasonable assurance of ongoing compliance. The CO CEM is registered with the District and is subject to Volume V of the District Manual of Procedures. The District source test section reviewed the installation of the CO CEM including the range of the monitor. The CO CEM meets the requirements of 64.3(a)(3)(i) by measuring the pollutant directly and not relying on an indicator.

The CO CEM meets the requirement of Section 64.3(b)(1) to obtain representative data because the CO CEM is registered with the District and is subject to Volume V of the District Manual of Procedures. The District source test section has reviewed the installation of the CO CEM to ensure that the CO concentration data is representative.

The CO CEM meets 64.3(b)(2) since the District source test section approved the initial installation of the monitor and because the facility follows the District's verification procedures in the District Manual of Procedures. The facility meets the quality assurance requirements in 64.3(b)(3) by meeting Title V of the District Manual of Procedures and by having the District source test section review the CO CEM data on a monthly basis.

The CO CEM meets 64.3(b)(4) by measuring the CO concentration at the exhaust stack at least once every fifteen minutes (excluding normal calibration periods) as required by Condition No. 19684 part 23c. The CO concentration measurements are averaged over any rolling 3-hour period (part 18.3). This frequency agrees with the 64.3(b)(4)(ii) requirement that the owner/operator collect four or more values equally spaced over each hour. The CO monitoring frequency of measuring once every fifteen minutes is adequate to characterize any variability due to the oxidation catalyst. The facility uses a computerized data acquisition system to record the CO concentration data.

The CO CEM measures the CO concentration at the exhaust stack directly and meets the requirement of 64.3(c). The CO CEM monitoring accounts for process and control device operational variability and documents the actual CO emissions relative to the permit limit.

64.3(d)(1) requires the owner/operator to use a CEM required by the Act, state or local law to satisfy the requirements of part 64. 64.3(d)(2)(vi) states that a CEM that satisfies monitoring requirements and specifications established by the permitting authority shall be deemed to satisfy the general design criteria specified in 64.3(a) and (b).

64.3(d)(3)(i) require the owner/operator to design the monitoring system subject to 64.3(d) to report exceedances consistent with any period in an underlying requirement. The data acquisition and handling for the CO CEM allows the owner/operator to meet 64.3(d)(3)(i). The owner/operator is required to report any exceedance of Permit Condition No. 19684 to the Compliance and Enforcement Division within 96 hours of the violation of the condition.

64.4(a) requires the owner/operator to submit to the permitting authority monitoring that satisfies the design requirements of 64.3. The CO CEMs meet 64.4(a)(1) through (4)

since the unit directly measures CO concentration, is registered with the District, and is subject to Volume V of the District Manual of Procedures. The District source test section reviewed the installation of the CO CEM to ensure that the CO concentration data is representative. The review included CO monitor ranges. The monitors meet the performance criteria in 64.3(b) since this monitor meets 64.3(d)(2)(vi), which allows the permitting authority to establish monitoring requirements and specifications.

64.4(b) requires the owner/operator to submit a justification for the proposed elements of the monitoring. If the owner/operator relies on a presumptively acceptable monitoring no further justification for the appropriateness of the monitoring should be necessary other than an explanation of the applicability of such monitoring to the unit in question. The use of a CEM is considered presumptively acceptable in accordance with 64.4(b)(2).

64.4(c)(1) requires the owner/operator to collect process and control device data during compliance or performance testing when the facility is justifying or establishing the use of an indicator of emission subject to part 64. 64.4(c)(2) requires the owner/operator must document that there are no changes to the emissions unit and control device that could result in a significant change in control system performance or the selected ranges or designated conditions for the indicators to be monitored since the performance or compliance tests were conducted. The CO CEM measures emissions directly and meets the requirements contained in 64.4(c)(1) and (2). Any changes to the emissions unit or control device and the associated impact on CO emissions are quantified on a continuous basis.

64.5(a) requires the owner/operator to submit information required under 64.4 with the initial Title V permit application (submitted on July 12, 2002). The facility has not submitted a document specifically addressing the information under 64.4, but the CO CEM monitoring information meeting 64.4 was submitted to the District source test section. The installation and operation of the CO CEM has been approved by the District source test section. The use of a CEM is considered presumptively acceptable in accordance with 64.4(b)(2).

64.6(c) requires the permitting authority to establish permit terms and conditions that specify the required monitoring in accordance with 70.6(a)(3)(i) of this chapter. According to 64.6(c)(1) at a minimum, the permit shall specify: the approved monitoring approach, indicators to be monitored, means or device used to measure the indicators, the performance requirements established by 64.3(b) or (d) as applicable.

Condition No. 19684 specifies that the CO emissions are monitored with continuous monitors in Part 23(c). Part 23(c) specifies that the owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The condition part 23(c) meets the requirements of 64.6(c)(1).

64.6(c)(2) specifies the means by which the owner/operator will define an exceedance or excursion for the purposes of reporting exceedances or excursions under 64.7 and 64.8. The permit shall specify the level at which an exceedance or excursion will be deemed to occur, including the appropriate averaging period. Condition 19684 part 18.3, has permit limits for CO in ppm corrected to 15% oxygen averaged over any rolling 3-hour period, lb/MMBtu, and pound per hour. Compliance with these limits is demonstrated with the CO CEM, monitoring (part 23**)**.

64.6(c) (3) requires the owner/operator to conduct monitoring and other obligations as required in 64.7 and 64.9. The facility is required to monitor CO concentrations from the affected emission units by Condition No. 19684, part 23. The facility has measured CO emissions using a District approved CEM from the affected emissions unit since the start of commercial operation (March 2003). The facility continues to submit monthly CEM summary reports to the District's source test section. The facility continues to operate the CO CEM in accordance with District requirements and meets District recordkeeping and reporting requirements.

64.6(c)(4) discusses minimum data availability for a given averaging period or for averaging periods for a specific reporting period. Volume V of the District's Manual of Procedures requires the facility to notify the District if the CO CEM is down for over 24 hours and to report any malfunctions on a monthly basis. Downtime in excess of 15 consecutive days may be deemed a failure to monitor unless if adequate proof of expeditious repair is not furnished to the APCO.

64.7(a) requires the owner/operator to conduct monitoring required by part 64 upon issuance of the part 70 or 71 operating permit or by such later date specified in the permit pursuant to 64.6(d). According to 64.6(d) the part 70 permit shall include an enforceable schedule with appropriate milestones for completing such installation, testing, of final verification. The District permit condition 19684, which is part of the part 70 permit, required initial monitoring for CO with a CEM during the commissioning period. Prior to completing the commissioning period, the monitor was required to be certified in accordance with Volume V of the District Manual of Procedures. The facility has operated the CO CEM in accordance with the Manual of Procedures since that time.

64.7(b) requires the owner/operator to maintain the monitoring equipment at all times. Volume V of the District's Manual of Procedures requires that all monitoring systems shall be maintained in a good state of repair. At the discretion of the APCO, either complete performance specification tests or field accuracy tests may be required after repairs have been made.

64.7(c) requires the owner/operator to conduct monitoring at all times that the emissions unit is operating excluding monitoring malfunctions, associated repairs, and required quality assurance or control activities. Volume V of the District's Manual of Procedures requires the facility to notify the District if the CO CEM is down for over 24 hours and to report any malfunctions on a monthly basis. Downtime in excess of 15 consecutive days

may be deemed a failure to monitor unless if adequate proof of expeditious repair is not furnished to the APCO.

64.7(d) requires the owner/operator to restore operation of the specific emissions unit including the control device to its normal manner of operation as expeditiously as practicable to minimize emissions. Condition No. 19684 requires the owner/operator to follow the District breakdown reporting procedures, which require immediate notification of a breakdown condition to the District in accordance with District Regulation 1, Section 431. The facility is required to promptly report deviations from Title V permit requirements and identify the appropriate corrective action.

64.7(e) requires the owner/operator to notify the permitting authority and if necessary submit a proposed modification to the monitoring program if a failure to achieve compliance with an emission limitation or standard is identified while providing valid data for an indicator. The facility measures CO concentration from the affected emissions units directly and it is unlikely that the owner/operator would need to document a need for improved monitoring.

64.8 allow the Administrator or permitting authority to require a facility subject to part 64 to develop and implement a Quality Improvement Plan. The facility continues to comply with Volume V of the District's Manual of Procedures for CEMs and this document contains sufficient quality assurance and quality control requirements.

64.9 describe the recordkeeping and reporting requirements required to meet part 64. The facility submits monthly CEM summaries to the District source test section. The facility is required to submit semiannual compliance certifications in accordance with the Title V permit. The facility is required to promptly report deviations from Title V permit requirements and identify the appropriate corrective action.

64.10 states that compliance with part 64 does not excuse the owner/operator from complying with other applicable requirements, prevent the permitting authority from imposing additional monitoring requirements, and/or restrict the Administrator or permitting authority from taking enforcement action. The facility is subject to this requirement and no additional permit conditions are required.

40 CFR Part 72, Acid Rain Program

Part 72, Subpart A, establishes general provisions and operating permit program requirements for sources and affected units under the Acid Rain program, pursuant to Title IV of the Clean Air Act. The gas turbine is an affected unit subject to the program in accordance with 40 CFR Part 72, Subpart A, Section 72.6(a)(3)(i). The facility continues to meet 72.9 Standard Requirements which requires the submission of a complete acid rain permit application, the possession of a valid acid rain permit, meeting the monitoring requirements of part 75, and holding sufficient allowances, and comply with the acid rain SO_2 limit. The facility must hold sufficient SO_2 allowances by March 1 (February 29 of a leap year) of every year to offset each ton of SO_2 emitted for the

previous calendar year. The facility is expected to comply with the excess emissions, recordkeeping and reporting requirements in 72.9(e) and 72.9(f).

Part 72, Subpart C, contains requirements for acid rain permit applications and compliance plans. The facility is expected to continue to meet these requirements.

Part 72, Subpart E, contains the requirements for the acid rain permit which must include all elements of a complete acid rain application.

40 CFR Part 75, Continuous Emission Monitoring

Part 75, Subpart A, contains the applicability criteria, compliance dates, and prohibitions. The emissions unit at the facility is subject to Part 72 and is therefore subject to Part 75. The NO_x monitoring is subject to part 75 per 75.2(c). The facility is expected to continue to meet the compliance dates and prohibitions contained in part 75 Subpart A.

Part 75, Subpart B, contains specific monitoring provisions for each pollutant subject to part 75. The turbine at this facility is required to meet the SO_2, NO_x, and CO_2 monitoring requirements contained in 75.10(a)(1), 75.10(a)(2), 75.10(a)(3) Opacity monitoring under 75.10(a)(4) is not required for gas fired units in accordance with 75.14(c). 75.10(b) requires each CEM to meet equipment, installation, and performance specification in part 75, Appendix A, and quality assurance/quality control in Appendix B. 75.10(c) requires heat input rate monitoring to meet requirements contained in part 75 Appendix F. The facility is expected to continue to comply with the requirements contained in 75.10(b) and (c).

75.10(d) contains primary equipment hourly operating requirements that require the CEM to monitor emissions when the emissions unit combusts fuel except as specified in 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to §75.21 and appendix B of this part, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to §75.20. This section also contains requirements for calculating hourly averages from four 15-minute periods and validity of data and data substitution. Emission concentrations for a given hour are not considered valid unless it is based on four valid measurements. The data substitution requirements are contained in Subpart D. The facility is expected to continue to comply with the requirements contained in 75.10(d). 75.10(f) specifies minimum measurement capability requirement for CEMs and 75.10(g) contains the minimum recordkeeping and reporting requirements. The facility is expected to continue to meet 75.10(f) and (g).

75.11 contain specific provisions for SO_2 monitoring. 75.11(d)(2) allows the use of Appendix D to monitor SO_2 emissions from gas fired units. The facility monitors sulfur content of the natural gas to meet Part 75 SO_2 monitoring requirements.

75.12 contain specific provisions for NO_x emission rates. The facility uses a NO_x CEM and an O_2 monitor to meet this requirement.

75.13 contain CO_2 monitoring requirements. The facility monitors CO_2 in accordance with this section using the procedures in part 75, Appendix G.

75.14 contain opacity monitoring requirements. The facility is exempt from opacity monitoring under part 75 per 75.14(c).

Part 75, Subpart C, contains operation and maintenance requirements including certification and recertification of the CEM, quality assurance/quality control requirements, reference test methods, and out-of-control periods and adjustment for system bias. The facility is expected to continue to meet these requirements.

Part 75, Subpart D (75.30 through 75.36), contains Missing Data Substitution Procedures for SO_2, NO_x, flow rate, CO_2, and heat input procedures. The facility is expected to continue to meet these requirements.

Part 75, Subpart F, contains the recordkeeping requirements including the contents of a part 75 monitoring plan. This subpart requires the facility to record the operating time, heat input rate, and load for each emissions unit. Additionally, the facility must record emissions data for SO_2, NO_x, CO_2, and O_2 along with quality assurance/quality control information
.
Part 75, Subpart G, contains the reporting requirements for affected facilities subject to part 75. The facility is expected to continue to meet these requirements.

Changes to Permit:
Updated Regulation Title and date for 40 CFR 60, Subpart GG in Table IV-A.

Changes to Permit:
There are no changes to Table IV-B

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

> "409.10 A schedule of compliance containing the following elements:
>
> 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
>
> 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
>
> 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out" language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions have also been deleted due to the following:
- The event has already occurred (i.e. initial or start-up source tests).

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:
- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

Changes to permit:
Added "Annual" definition to permit condition.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined the existing monitoring is adequate with the following exceptions.

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some

other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate**.**

PM Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 & S-2 Combustion Gas Turbine & Cooling Tower	BAAQMD Regulation 6-1-310	0.15 grain/dscf	None
S-1 & S-2 Combustion Gas Turbine & Cooling Tower	SIP Regulation 6-310	0.15 grain/dscf	None
S-1 & S-2 Combustion Gas Turbine & Cooling Tower	BAAQMD Regulation 6-1-301	Ringelmann 1.0 for more than 3 min/hr	None
S-1 & S-2 Combustion Gas Turbine & Cooling Tower	SIP Regulation 6-301	Ringelmann 1.0 for more than 3 min/hr	None
S-3 Cooling Tower	BAAQMD Regulation 6-1-311	40 lb/hr	None
S-3 Cooling Tower	SIP Regulation 6-1-311	40 lb/hr	None

PM Discussion:
BAAQMD Regulation 6 Rule 1 "Particulate Matter General Requirements"

Visible Emissions
BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-1 burn natural gas exclusively therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for this source.

S-2 Cooling Tower is not expected to emit visible particulate emissions. Therefore, monitoring is not required to ensure compliance with Regulation 6-1-301 for this source.

Particulate Weight Limitation Discussion:
BAAQMD Regulation 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from "heat transfer operations" to 0.15 gr/dscf @ 6% O_2. These are the "grain loading" standards.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-1 exclusively burns natural gas. Therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for this source.

As shown in the following calculation, the worst-case grain loading from the S-2 Cooling Tower is much less than 0.15 grains per dscf. Therefore, no monitoring is required to ensure compliance with this limit for this source.

Cooling water circulation rate	4,160 gpm
Drift rate	0.005%
Maximum total dissolved solids	10,000 ppm
Exhaust gas flow rate:	372,330 dscfm

Cooling tower drift:
(4,160 gal/min)(60 min/hr)(8.34 lb/gal)(0.00005) = 104.08 lb/hr
PM10 emission rate = (104.08 lb/hr)(10,000 ppm)/10^6
= 1.04 lb/hr
Grain loading = (1.04 lb/hr)(hr/60 min)(7000 gr/lb)/(372,330 dscfm)
= 0.00032 gr/dscf
Since the grain loading is so low, the cooling tower is not expected to have visible emissions.

SO_2 Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 Combustion Gas Turbine	BAAQMD 9-1-301	Ground level concentrations of SO2 shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
S-1 Combustion Gas Turbine	BAAQMD 9-1-302	300 ppm (dry)	Fuel Gas Total sulfur content analysis
S-1 Combustion Gas Turbine	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	None

SO2 Discussion:
BAAQMD Regulation 9-1-301
Area monitoring to demonstrate compliance with the ground level SO2 concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). This facility does not have equipment that emits large amounts of SO2 and therefore is not required to have ground level monitoring by the APCO.

All facility combustion sources are subject to the SO2 emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is necessary for this requirement.

NOx Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 Combustion Gas Turbine	BAAQMD 9-9-301.1.3	9 ppmv @ 15% O2, dry	CEM and Source test every 8,000 hrs. or every 3 yrs., whichever comes first
S-1 Combustion Gas Turbine	BAAQMD 9-9-301.2	0.43 lbs/MW hr or 9 ppmv @ 15% O2, dry	CEM

NOx Discussion:

BAAQMD Regulation 9 Rule 9

The turbine is subject to the NOx emission limitations in District Regulation 9, Rule 9 (Monitoring and Recordkeeping Requirements). This facility has a stationary gas turbine with a heat input rate greater than 150 MMBtu/hr and operates more than 4000 hours in a 36-month period. Therefore, it is required to have Continuous Emission Monitoring (CEM) per BAAQMD Regulation 9-9-501. In addition, part 24 of permit condition #19684 requires S-1 to be source tested every 8000 hours or every 3 years, whichever comes first.

CO Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 18.3	6 ppmv @ 15% O2, dry 3-hr rolling average except during turbine startup or shutdown	CEM and Source test every 8,000 hrs. or every 3 yrs., whichever comes first
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 21	163 lbs/calendar day	CEM

CO Discussion:
The CO limit prescribed in condition #19684 Part 18.3 is 6 ppmv @ 15% O2. The gas turbine has the potential to emit large amounts of CO. Therefore, the gas turbine is required to have a CO CEM and part 24 of permit condition #19684 requires S-1 to be source tested every 8000 hours or every 3 years, whichever comes first

POC Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 18.4	2 ppmv @ 15% O2, dry 1-hr rolling average except during turbine startup or shutdown	Source test every 8,000 hrs. or every 3 yrs., whichever comes first
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 21	31 lbs/calendar day	Source test every 8,000 hrs. or every 3 yrs., whichever comes first

POC Discussion:
Precursor organic compound (POC) limit prescribed in condition #19684 Part 18.4 2 ppmvd @ 15% O2, except during periods of startup and shutdown as defined in this permit. Part 24 of permit condition #19684 requires S-1 to be source tested every 8000 hours or every 3 years, whichever comes first. Continuous Emission Monitoring (CEM) is not available for POC. Therefore, CEM monitoring is not required.

NH_3 Sources			
S# & Description	**Emission Limit Citation**	**Federally Enforceable Emission Limit**	**Monitoring**
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 18.2	10 ppmv @ 15% O2, dry 1-hr rolling average except during turbine startup or shutdown	Calculation based on source test and NH3 to NOx ration at inlet to SCR
S-1 Combustion Gas Turbine	BAAQMD Condition #19684 Part 18.2	10 ppmv @ 15% O2, dry 1-hr rolling average except during turbine startup or shutdown	Source test every 8,000 hrs. or every 3 yrs., whichever comes first

NH_3 Discussion:
Continuous Emission Monitoring (CEM) is not available for NH3. The NH3 monitoring is based on the source test and NH3 to NOx ratio at the inlet to SCR. The slip calculation and correction factor is determined by source test every 8000 hours or every 3 years, whichever comes first.

Changes to permit:

1. The monitoring requirement citation for NOx has been changed from "NSPS 40 CFR 60.334(c)" to "NSPS 40 CFR 60.334 (b) because combustion turbine at Wolfskill Energy Center is using water injection technology to control NOx emissions.
2. The monitoring frequency for Heat input limit has been changed from "P/M" to "P/Q" as per permit condition 19684 Part 23d.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit

Changes to permit**:**
There are no changes to Test Methods.

IX. Title IV Acid Rain Permit

2) SO2 ALLOWANCE ALLOCATIONS

	Year	2017	2018	2019	2020	2021
	allowances under Table 2 of 40 CFR Part 73	**None**	**None**	**None**	**None**	**None**
Combustion Turbine	**NOx Limit**	**unit is not subject to the NOx requirements from 40 CFR Part 76 as this unit is not capable of firing on coal.**				

3) ADDITION TO COMMENTS, NOTES AND JUSTIFICATIONS

Pursuant to 40 CFR Part 72.6(a)(3)(i), S-1 is considered a new utility unit and is subject to the acid rain permit requirements of 72.9(a).

S-1 Gas Turbine is not listed in table-2 of 40 CFR Part 73; therefore, the operator did not receive initial SO2 allowances under the Acid Rain program.

S-1 Gas Turbine does not qualify for a new unit exemption pursuant to 40 CFR 72.7
(b)(1) since it serves a generator with a nameplate capacity greater than 25 MW.

X. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

Changes to permit:
Facility did not apply for permit shield. Therefore, permit shield was removed.

XI. Revision History

This section contains the details of issuance and revisions for each permit.
The initial Title V permit for this facility was issued on July 18, 2003.
NSR Application 10472 on January 25, 2005
Significant revision on December 5, 2006
Title-V permits renewal Feb 15, 2009
Title-V permit renewal April 18, 2017

XII. Glossary

This section contains terms that may be unfamiliar to the general public or EPA.

Changes in this action
There are no changes proposed for this section.

D. Alternate Operating Scenarios:

No alternate operating scenarios have been requested for this facility.

APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority which allows the District to impose requirements

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CEM
Continuous Emission Monitor

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered

District
The Bay Area Air Quality Management District

dscf
Dry Standard Cubic Feet

EPA
The federal Environmental Protection Agency

Excluded
Not subject to any District regulations

FDOC
Final Determination of Compliance (FDOC), prepared pursuant to District Regulation 2, Rule 3, Power Plants

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63

HRSG
Heat Recovery Steam Generator

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6

MOP
The District's Manual of Procedures

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx
Oxides of nitrogen

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2

PUC
Public Utilities Commission (California)

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act

SO2
Sulfur dioxide

THC
Total Hydrocarbons (NMHC + Methane)

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Plan

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year